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### Developing and teaching asynchronous, online courses in fisheries

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## **Developing and Teaching Asynchronous, Online Courses in Fisheries**

Richard J. Strange<sup>1</sup>

Asynchronous, online courses in fish physiology and recirculation aquaculture were developed using a standard html web site for delivery of content. The content was presented with text, Shockwave Flash (swf) animations, image mapped photographs, and streaming video. The text portions included an interactive glossary and assignments that were linked to the text at appropriate points for immediate access by the students. More than a hundred traditional scientific illustrations were brought to life thorough swf animation. Many of the animations included hot spot links to additional illustrations and the animations had speaking captions. In Fish Physiology, labs were presented using image mapped photos of dissected fish with interactive labels and pop-up image maps of photomicrographs. In Recirculation Aquaculture, lab material was presented in video clips and interactive simulations that were based on mathematical models. The web sites included links to the course management software Blackboard which was used primarily to for question/answer and threaded discussions of research papers. Students were assigned two “chapters” (web pages) a week and had a written assignment due each week which was submitted by email. There were a term papers, midterm and final exams. The exams were of the open-book, take-home type. Additionally, the students were required to participate in the discussions each week. Both courses were simultaneously offered at the upper division undergraduate and graduate level. Sample pages can be seen at: <http://web.utk.edu/~rstrange/> by following appropriate links.

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